

# GEOL 111 Section 1

## UNDERSTANDING THE EARTH

**MEETING:** MWF 10:00-10:50 AM  
**PROFESSOR:** Steve Lundblad  
**OFFICE:** CH 119  
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**OFFICE HOURS:** M 2-3, T 9:30-11, W 11-12 and by appointment

**TEXT:** *Earth: An Introduction to Physical Geology* by Tarbuck and Lutgens, 9<sup>th</sup> Edition iclicker

**WEBPAGE:** Navigate to the geology dept. webpage: [www.uhh.hawaii.edu/~geology](http://www.uhh.hawaii.edu/~geology) or go directly to the course page at: [www.uhh.hawaii.edu/uhh/faculty/lundblad/GEOLOGY111UnderstandingtheEarth.php](http://www.uhh.hawaii.edu/uhh/faculty/lundblad/GEOLOGY111UnderstandingtheEarth.php)

**EXAMS AND QUIZES:** There will be bi-weekly quizzes (“iclicker” required), homework assignments, 2 mid-term tests, and a final exam during the semester. No make-up exams or quizzes will be given.

**“QUESTION OF THE WEEK”:** At least once a week, a “question of the week” or “two-minute quiz” will be given. The answer to the question will be based on information outlined during class that day. These are a great way to make sure you understand the information we are discussing in class. We will typically use the “iclicker” for these quizzes.

**GRADES:** Grades will assigned according to the following distribution (%)

Quizzes	20%
Midterm 1	20%
Midterm 2	20%
Questions of the week, homework, and in-class assignments	20%
Final exam (2 “blocks”)	40%

This distribution totals 120%. The lowest grade of these 6 blocks will be dropped. For this reason, no make-up exams or assignments will be given.

Letter grades will be assigned on the following scale. There may be a “curve” for tests and quizzes, but it will be best not to count on a change from this scale!

Grade	Percent	Grade	Percent	Grade	Percent
A	100-93	B-	82-80	D+	69-67
A-	92-90	C+	79-77	D	66-63
B+	89-87	C	76-73	D-	62-60
B	86-83	C-	72-70	F	Below 60

## **SOME INTENDED STUDENT LEARNING OUTCOMES FOR GEOLOGY 111**

- ✓ Understand the nature of scientific reasoning
- ✓ Know the layers of the earth and how we study them
- ✓ Describe Plate Tectonic Theory and use it to describe specific geographic places on earth
- ✓ Understand the data used to support plate tectonic theory
- ✓ Know the difference between a scientific hypothesis and theory
- ✓ Know the definition of a mineral
- ✓ Describe the chemical properties of minerals and their relationship to physical properties
- ✓ Describe the rock cycle
- ✓ Understand the different types of volcanoes and why some are more dangerous than others
- ✓ Know the precursor events leading up to a volcanic eruption
- ✓ Describe the types of hazards associated with volcanoes
- ✓ Know the plate tectonic setting of volcanoes
- ✓ Describe the formation of the Hawaiian islands and its relationship to a Mantle Hotspot
- ✓ Know how sediment and soil forms
- ✓ Use evidence from sedimentary rocks to describe paleoenvironments
- ✓ Use evidence from metamorphic rocks to determine degree of pressure and temperature change
- ✓ Apply the term “facies” to metamorphic and sedimentary rocks
- ✓ Know the geologic time scale
- ✓ Apply absolute and relative age dating techniques to determine the sequence of events
- ✓ Understand how rocks deform
- ✓ Know different types of folds and faults and understand what processes formed each type
- ✓ Relate folds and faults to different plate tectonic settings
- ✓ Understand how and where earthquakes are generated
- ✓ Describe the hazards associated with earthquakes
- ✓ Describe volcanic and earthquake hazards in Hawaii
- ✓ Know the hydrologic cycle
- ✓ Describe how water moves through its reservoirs
- ✓ Know how glaciers form and move
- ✓ Describe the variation in the earth’s climate.
- ✓ Know how and where oil, gas, and coal are formed
- ✓ Describe the pros and cons of renewable and non-renewable resources
- ✓ Have fun learning about the earth
- ✓ Apply the knowledge gained in this class to your surroundings

## **SOME TIPS FOR A SUCCESSFUL AND HAPPY SEMESTER**

- (1) Do not miss a class, not one. Reading your text is NOT a substitute for attending lecture. Please come to class on time and wait until the end of class to leave. If, for some reason you need to arrive late or leave early, thank you for sitting next to the back door and doing so quietly.
- (2) Read your text assignments before class. Be ready to ask questions and participate in class.
- (3) Take good, complete notes. The more you write, the better. Write the information presented on the board, write the information presented during slide presentations, and write what I say during lecture. If you do not understand a concept or example, ASK. If I go too quickly, ask me to repeat the information. If you miss a lecture, get notes from fellow classmates and ASK me questions regarding information in them.
- (4) If you do not understand a concept we discuss in class, ask questions during class or come and see me. I am available during office hours and most other times during the day (unless I am otherwise teaching). The only way I can help you understand the material is if you ASK for help!
- (5) Take an active role in class. Ask questions! Have a comment on the current topic? Make it! This class will be more educational AND fun if we all get actively involved. We are all busy and sometimes this class will end up taking a back seat to other priorities, but...the more you invest in this class, the more you will receive in return.
- (6) Study for the tests by going over your notes, re-reading the information in the textbook, reviewing and answering the questions at the end of the chapter, and getting together with classmates to discuss the information on a regular basis. You will retain the information much better by revisiting it frequently. Don't expect to cram everything we cover this semester into your head the night before a test or quiz. Try to synthesize the information we have been discussing. Make some connections between information covered in one class with that covered last time, last week, and last month.

Any student with a documented disability who would like to request accommodations should contact the University Disability Services Office - Hale Kauano'e A Wing Lounge, 933-0816 (V), 933-3334 (TTY), [shirachi@hawaii.edu](mailto:shirachi@hawaii.edu) - as early in the semester as possible.

**GEOL 111 Section 1:  
Understanding the Earth Fall 2008**

<u>Date</u>	<u>Lecture Topic</u>	<u>Reading Assignment</u>
Aug 25	Introduction	p.1-17; 26-31
Aug 27	The Earth	p. 17-25
Aug 29	Geologic Time: Relative Age Dating	p. 247-258
<b>Sep 1</b>	<b>Labor Day Holiday</b>	
Sep 3	Geologic Time: Absolute Age Dating	p. 259-272
	Geologic Time: Absolute Age Dating and the Geologic	
Sep 5	Time Scale	
	<b>Homework 1 Due: The Earth</b>	p. 259-272
Sep 8	Plate Tectonics and Continental Drift	p. 34-45; 53-64
Sep 10	Paleomagnetism and Plate Tectonics	p. 45-53; 64-74
Sep 12	Plate Tectonics	
	<b>Homework 2 Due: Age Dating</b>	p. 376-400
Sep 15	<b>Quiz #1.</b> Rocks and Minerals	p. 70-99
Sep 17	Mineral Structures	
Sep 19	Rock-Forming Minerals	
Sep 22	Igneous Rocks	p. 100-123
Sep 24	Volcanoes	p. 124-158
Sep 26	Igneous Intrusions	
Sep 29	Volcanic Hazards	p 159-163
Oct 1	<b>Quiz #2.</b> Volcanic Hazards Case Study: Hotspot Volcanism in Hawaii	
Oct 3	Yellowstone and the Snake River Plain, Idaho	
	Volcanic Hazards Case Study:	
Oct 6	Mt. St. Helens. Predicting Volcanic Eruptions	
<b>Oct 8</b>	<b>Exam 1</b>	
Oct 10	No Class	
Oct 13	Soil Formation. Sedimentary Rocks and Processes	p. 182-208; 210-234
Oct 15	Sedimentary Processes	p. 234-240
Oct 17	Sedimentary Environments: Grand Canyon Case Study	
Oct 20	Metamorphic Rocks and Processes	p. 242-265
Oct 22	Metamorphic Facies	p. 265-268
Oct 24	Case Study: Italian Marble Metamorphic Facies	

<b><u>Date</u></b>	<b><u>Lecture Topic</u></b>	<b><u>Reading Assignment</u></b>
Oct 27	<b>Quiz #3.</b> Rock Deformation: stress and strain	p. 300-324
Oct 29	Folds and Faults	
Oct 31	Earthquakes: Seismic Waves	p. 326-340; 360-372
Nov 3	Measuring Earthquakes	p. 340-358
Nov 5	Earthquake Hazards in Hawaii and Tsunami	
	<b>Homework 3 Due: Earthquakes</b>	
Nov 7	<b>Quiz #4.</b> Hydrologic System: Surface Water	p. 422-436
Nov 10	Rivers and streams	p. 436-447
Nov 12	Floods	p. 447-455
	Modifying Surface Water Systems	
Nov 14	<b>Homework 4 Due: Floods</b>	
Nov 17	<b>Exam 2</b>	
Nov 19	Groundwater	p. 456-467
Nov 21	Caves and Karst	p.468-481
Nov 24	Glaciers	p. 482-492
Nov 26	Glacial Features	p. 493-504
<b>Nov 28</b>	<b>Thanksgiving Holiday</b>	
Dec 1	Glaciations and Climate Change	p. 505-513
Dec 3	Climate Change	
Dec 5	<b>Quiz #5.</b> Energy Resources	p.622-636
Dec 8	Petroleum Reserves	p. 622-636
Dec 10	Alternate Energy Sources	p. 636-644
<b>Dec 15</b>	<b>Final Exam 9:40-11:40 AM</b>	